

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A system, comprising:
a local area network management system to manage and configure a network of routers;
a wide area network management system to manage and configure a network of switches;
and
address registration information to be appended to a message sent between a router of the network of routers and a switch of the network of switches over a connection between the router and the switch, wherein either the local area network management system or the wide area network management system uses the address registration information ~~to map~~ in mapping the network of routers and the network of switches by accessing each router in the network of routers and each switch in the network of switches, wherein the mapping comprises:
acquiring the address registration information from the router when the message is received at the router from the switch;
accessing a management information base (MIB) associated with the switch using the address registration information;
accessing the MIB associated with other switches of the network of switches using the MIB associated with the switch from which the message is sent; and
building a map of entire switches of the network of switches based on accessing each of the other switches.
2. (Original) The system of claim 1, wherein the address registration information comprises an interface index.
3. (Previously Presented) The system of claim 2, wherein the interface index comprises a slot number from which the message was sent.

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4. (Previously Presented) The system of claim 2, wherein the interface index comprises a port number from which the message was sent.
 5. (Original) The system of claim 1, wherein the address registration information comprises an Internet Protocol address.
 6. (Currently Amended) The system of claim 1, wherein the address registration information is sent in a data packet, wherein the data packet comprises spare bytes.
 7. (Previously Presented) The system of claim 1, wherein the router sends the message.
 8. (Currently Amended) The system of claim 1, wherein the switch sends the message.
 9. (Previously Presented) The system of claim 1, wherein the message is an enhanced local management interface message.
 10. (Previously Presented) The system of claim 1, wherein the message is sent when the network of switches and the network of routers are first configured.
 11. (Previously Presented) The system of claim 1, wherein the message is sent when the network of switches or the network of routers has a change in configuration.
 12. (Previously Presented) The system of claim 1, wherein the message is sent at a regular interval.
 13. (Cancel)
 14. (Currently Amended) The system of claim 1 ~~13~~, wherein the local area network management system configures the network of switches.

15. (Cancel)
16. (Currently Amended) The system of claim 1 ~~15~~, wherein the wide area network management system configures the network of routers.
17. (Currently Amended) A computer-implemented method, comprising:
appending address registration information to a message;
sending the message between a router of a router network and a switch of a switch network; and
mapping, using the address registration information, to map the router network from at a wide area network management system controlling the switch network, wherein the mapping comprises:
acquiring the address registration information from the switch when the message is received at the switch from the router;
accessing a management information base (MIB) associated with the router using the address registration information;
accessing the MIB associated with other routers of the router network using the MIB associated with the router from which the message is sent; and
building a map of entire routers of the router network based on accessing each of the other routers.
18. (Canceled)
19. (Currently Amended) The method of claim 17 ~~18~~, further comprising configuring the router network using the wide area network management system.
20. (Original) The method of claim 17, further comprising using the address registration information to map the switch network from a local area network management system controlling the router network.

21. (Original) The method of claim 20, further comprising configuring the switch network using the local area network management system.
22. (Original) The method of claim 17, wherein the address registration information comprises an Internet Protocol address.
23. (Original) The method of claim 17, wherein the address registration information comprises an interface network.
24. (Previously Presented) The method of claim 23, wherein the interface index comprises a slot number from which the message was sent.
25. (Previously Presented) The method of claim 23, wherein the interface index comprises a port number from which the message was sent.
26. (Currently Amended) The method of claim 17, wherein the address registration information is sent in a data packet, wherein the data packet comprises spare bytes.
27. (Previously Presented) The method of claim 17, wherein the router sends the message.
28. (Currently Amended) The method of claim 17, wherein the switch sends the message.
29. (Previously Presented) The method of claim 17, wherein the message is an enhanced local management interface message.
30. (Previously Presented) The method of claim 17, wherein the message is sent when the network of switches and the network of routers are first configured.
31. (Previously Presented) The method of claim 17, wherein the message is sent when the network of switches or the network of routers has a change in configuration.

32. (Previously Presented) The method of claim 17, wherein the message is sent at a regular interval.

33. (Currently Amended) A machine-readable tangible storage medium tangibly embodying a sequence of instructions executable by the machine to perform operations comprising:

appending address registration information to a message;

sending the message between a router of a router network and a switch of a switch network; and

mapping, using the address registration information, to map the router network from at a wide area network management system controlling the switch network, wherein the mapping comprises:

acquiring the address registration information from the switch when the message is received at the switch from the router;

accessing a management information base (MIB) associated with the router using the address registration information;

accessing the MIB associated with other routers of the router network using the MIB associated with the router from which the message is sent; and

building a map of entire routers of the router network based on accessing each of the other routers.

34. (Canceled)

35. (Currently Amended) The machine-readable tangible storage medium of claim ~~33~~ 34, further comprising configuring the router network using the wide area network management system.

36. (Previously Presented) The machine-readable tangible storage medium of claim 33, further comprising using the address registration information to map the switch network from a local area network management system controlling the router network.

37. (Previously Presented) The machine-readable tangible storage medium of claim 36, further comprising configuring the switch network using the local area network management system.
38. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the address registration information comprises an Internet Protocol address.
39. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the address registration information comprises an interface index.
40. (Previously Presented) The machine-readable tangible storage medium of claim 39, wherein the interface index comprises a slot number from which the message was sent.
41. (Previously Presented) The machine-readable tangible storage medium of claim 39, wherein the interface index comprises a port number from which the message was sent.
42. (Currently Amended) The machine-readable tangible storage medium of claim 33, wherein the address registration information is sent in a data packet, wherein the data packet comprises spare bytes.
43. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the router sends the message.
44. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the switch sends the message.
45. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the message is an enhanced local management interface message.

46. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the message is sent when the network of switches and the network of routers are first configured.

47. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the message is sent when the network of switches or the network of routers has a change in configuration.

48. (Previously Presented) The machine-readable tangible storage medium of claim 33, wherein the message is sent at a regular interval.

49. (Currently Amended) A system, comprising:

a memory to store address registration information;

a means for appending the address registration information to a message;

a means for sending the message between a router of a router network and a switch of a switch network; and

a means for mapping, using the address registration information, ~~to map~~ the switch network ~~from~~ at a local area network management system controlling the router network, wherein, the mapping comprises:

acquiring the address registration information from the router when the message is received at the router from the switch;

accessing a management information base (MIB) associated with the switch using the address registration information;

accessing the MIB associated with other switches of the network of switches using the MIB associated with the switch from which the message is sent; and

building a map of entire switches of the network of switches based on accessing each of the other switches.

50. (Original) The system of claim 49, further comprising a means for use the address registration information to map the router network from a wide area network management system controlling the switch network.
51. (Original) The system of claim 50, further comprising a means for configuring the router network using the wide area network management system.
52. (Canceled)
53. (Currently Amended) The system of claim ~~49~~ 52, further comprising a means for configuring the switch network using the local area network management system.
54. (Original) The system of claim 49, wherein the address registration information comprises an Internet Protocol address.
55. (Original) The system of claim 49, wherein the address registration information comprises an interface index.
56. (Previously Presented) The system of claim 55, wherein the interface index comprises a slot number from which the message was sent.
57. (Previously Presented) The system of claim 55, wherein the interface index comprises a port number from which the message was sent.
58. (Currently Amended) The system of claim 49, wherein the address registration information is sent in a data packet, wherein the data packet comprises spare bytes.
59. (Previously Presented) The system of claim 49, wherein the router sends the message.
60. (Previously Presented) The system of claim 49, wherein the switch sends the message.

61. (Previously Presented) The system of claim 49, wherein the message is an enhanced local management interface message.

62. (Previously Presented) The system of claim 49, wherein the message is sent when the network of switches and the network of routers are first configured.

63. (Previously Presented) The system of claim 49, wherein the message is sent when the network of switches or the network of routers has a change in configuration.

64. (Previously Presented) The system of claim 49, wherein the message is sent at a regular interval.

65-80. (Canceled)

81. (Currently Amended) A computer-implemented method, comprising:

appending address registration information to a message;

sending the message between a router of a router network and a switch of a switch network;

mapping, using an the address registration information, to map the router network from a wide area network management system controlling the switch network;

configuring the router network using the wide area network management system;

mapping, using the address registration information, to map the switch network from at a local area network management system controlling the router network, wherein the mapping the switch network at the local area network management system comprises:

acquiring the address registration information from the router when the message is received at the router from the switch,;

accessing a management information base (MIB) associated with the switch using the address registration information;

accessing the MIB associated with other switches of the switch network using the MIB associated with the switch from which the message is sent; and
building a map of entire switches of the switch network based on accessing each of the other switches; and
configuring the switch network using the local area network management system.

82. (New) A system, comprising:

a local area network management system to control a router network, the local network management system operable to:

acquire address registration information from a router of the router network, the address registration information included in a message sent to the router from a switch of a switch network operatively coupled to the router network;

access a management information base (MIB) associated with the switch using the address registration information;

access the MIB associated with other switches of the switch network using the MIB associated with the switch from which the message is sent; and

build a map of entire switches of the switch network based on accessing each of the other switches.

83. (New) A computer-implemented method at a local area network management system configured to control a router network, comprising:

acquiring address registration information from a router of the router network, the address registration information included in a message sent to the router from a switch of a switch network operatively coupled to the router network;

accessing a management information base (MIB) associated with the switch using the address registration information;

accessing the MIB associated with other switches of the switch network using the MIB associated with the switch from which the message is sent; and

building a map of entire switches of the switch network based on accessing each of the other switches.

REMARKS

This communication responds to the Final Office Action mailed on March 9, 2009, and the Advisory Action mailed July 23, 2009. Claims 1, 6, 14, 16, 17, 19, 26, 33, 35, 42, 49, 53, 58, and 81 are amended. Claims 13, 15, 18, 34, 52, and 65-80 were previously canceled, no claim are presently canceled, and claims 82 and 83 are added. As a result, claims 1-12, 14, 16, 17, 19-33, 35-51, 53-64, and 81-83 are now pending in this application. Minor amendments have been made to claims 6, 14, 16, 19, 26, 35, 42, 53, and 58 to satisfy the requirements of §112, and not for reasons related to patentability. The amendments to independent claims 1, 17, 33, 49 and 81 are fully supported in the original specification.¹ Thus, Applicants respectfully assert that no new matter has been added.

Claim Objections

Claims 14, 16, 19, 35 and 53 were objected to under 37 CFR 1.75(c), as being of improper dependent form for depending on canceled claims.

Claims 14, 16, 19, 35 and 53 have been amended to correct their dependency, as suggested by the Examiner.² Reconsideration and withdrawal of this objection are respectfully requested.

§ 112 Rejection of the Claims

Claims 49-51 and 53-64 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. In particular, the Final Office Action stated that “claim 49 is a single means claim, i.e. where a means recitation does not appear in combination with another recited element of means, and is, therefore, subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph.”³ In view of the amendments to independent claim 49, this rejection is respectfully traversed.

Claim 49 has been amended to expedite prosecution of the instant patent application. Amended claim 49 recites, in pertinent part, “memory to store address registration information.”

¹ See e.g. Application, paragraphs [0021]-[0023].

² See Final Office Action, p. 6, #3.

³ Final Office Action, at p. 7, 3rd full paragraph.

The amendment is explicitly or inherently supported in the original specification.⁴ Thus, no new matter has been added.

Since, as quoted above, amended claim 49 recites an additional structural element, claim 49 and its dependent claims 50, 51 and 53-64 are not subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. Thus, for at least the reasons stated above, Applicants respectfully request that the rejection of claims 49-51 and 53-64 under 35 U.S.C. §112 be reconsideration and withdrawn.

Claims 6, 26, 42, and 58 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In view of the amendments to claims 6, 26, 42 and 58, this rejection is respectfully traversed.

Amended claims 6, 26, 42, and 58 each recite, in pertinent part, “the address registration information is sent in a data packet, wherein the data packet comprises spare bytes.” These elements are fully supported in the original specification.⁵ Thus, no new matter has been added.

As quoted above, amended claims 6, 26, 42 and 58 particularly point out and distinctly claim the claimed subject matter. Thus, for at least the reasons stated above, Applicants respectfully request that the rejection of claims 6, 26, 42, and 58 under 35 U.S.C. §112 be reconsideration and withdrawn.

§ 101 Rejection of the Claims

Claims 49-51 and 53-64 were rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. In particular, the Final Office Action states that “since all means recitations are provided by computer executable instructions, a system of a computer software per se is not in one of the statutory categories [and] the use of the word “system” does not inherently mean that the claim is directed to a machine.”⁶ In view of the amendments to independent claim 49, this rejection is respectfully traversed.

⁴ See e.g. Application, paragraphs [0024]-[0026] and FIG. 6.

⁵ See e.g. Application, FIG. 6 and paragraphs [0024], lines 1-2.

⁶ Final Office Action, pp. 8-9, lines 13-16.

As noted earlier in the discussion of § 112 rejections, claim 49 has been amended to expedite the prosecution of the instant patent application. Amended independent claim 49 recites an additional structural element. In addition, the means recited in claim 49 are clearly tied to, for example, “a router of a router network and a switch of a switch network.” Thus, claim 49 and its dependent claims 50, 51 and 53-64 are tied to hardware. Therefore, for at least the reasons stated above, Applicants respectfully request that the rejection of claims 49-51 and 53-64 under 35 U.S.C. §101 be reconsideration and withdrawn.

§ 103 Rejection of the Claims

Claims 1, 2, 4-12, 14, 16, 17, 19-23, 25-33, 35-39, 41-51, 53-55, 57-64, and 81 were rejected under 35 U.S.C. 103(a) as being unpatentable over Non-Patent Literature document titled “Integrated Local Management Interface (ILMI) Specification, Version 4.0” (hereinafter “ILMI Spec”) in view of Non-Patent Literature document titled “LAN/WAN Management Integration using ATM CNM Interface” by Hanaki et al. (hereinafter “Hanaki”). In view of the amendments in independent claims 1, 17, 33, 49 and 81, this rejection is respectfully traversed.

Claims 1, 17, 33, 49, and 81 have been amended to further distinguish from teachings of ILMI Spec or Hanaki, alone or in combination, as suggested by the Examiner.⁷ For example, amended claim 1 recites, in pertinent part:

acquiring the address registration information from the router when the message is received at the router from the switch,;
accessing a management information base (MIB) associated with the switch using the address registration information;
accessing the MIB associated with other switches of the network of switches using the MIB associated with the switch from which the message is sent; and
building a map of entire switches of the network of switches based on accessing each of the other switches.

Similar elements are recited in each of the other independent claims 17, 33, 49, and 81. It is respectfully submitted that neither ILMI Spec nor Hanaki, alone or in combination, teaches or suggests the above-quoted elements of amended claim 1.⁸

⁷ See Final Office Action, p. 5, lines 7-9.

⁸ See also Final Office Action, p. 5, lines 1-7.

In particular, the Final Office Action stated that ILMI Spec shows “either the local area network management system or the wide area network management system [Network Management Station] uses the address registration information to map the network of routers and the network of switches (pages 77-79, section Annex A. Network Management Access to ILMI data).”⁹ (Emphasis added) In doing so, the Final Office Action equates “ATM devices” to a router and a switch.¹⁰

To the contrary, ILMI Spec relates to “a proxy-agent mechanism that uses the existing functions of the ILMI to provide NMS [Network Management Station] access to ATM Interface MIB data.”¹¹ ILMI Spec, however, fails to show the above-quoted elements of amended claim 1 since the NMS in ILMI Spec does not use the ATM Interface MIB data or the ILMI to map the ATM devices. In fact, ILMI Spec further teaches that “since the data in ATM Interface MIBs is already accessible using SNMP via the IMEs, the simplest method to make this data accessible to external management systems is to add an SNMP proxy-agent that accepts SNMP requests from an NMS and relays them to the appropriate IME” located in a corresponding ATM device for local or remote processing.¹² Given that the ATM Interface MIBs in corresponding ATM devices are “already accessible using SNMP via the IMEs” and the third party entity, SNMP proxy-agent, relays requests from the NMS to a corresponding ATM device, the NMS in ILMI Spec would not map the ATM devices.

Hanaki was cited to remedy ILMI Spec’s deficiencies of “LAN NMS” and “WAN OS [CNM Agent].”¹³ Hanaki fails to show the above-quoted elements of claim 1. Applicants were unable to find any such teachings within the bounds of Hanaki.

The arguments in support of the patentability of claim 1 apply similarly to independent claims 17, 33, 49, and 81.

For at least the reasons stated above, Applicants respectfully submit that neither ILMI Spec nor Hanaki, alone or in combination, teaches or suggests all the elements recited in amended claims 1, 17, 33, 49, and 81. Thus, Applicants respectfully request that the rejection of claims 1, 17, 33, 49, and 81 under 35 U.S.C. 103(a) be reconsidered and withdrawn.

⁹ See *id.* at p. 10, lines 3-6.

¹⁰ See *id.* at p. 9, last line through p. 10, first line.

¹¹ ILMI Spec, p. 78, A.2, lines 5-6 and FIG. 6.

¹² ILMI Spec, p. 78, A.3, lines 1-5.

¹³ See Final Office Action, p. 10, lines 15-18.

Claims 2, 4-12, 14, 16, 19-23, 25-32, 35-39, 41-48, 50, 51, 53-55, and 57-64 depend from their respective independent claims 1, 17, 33, 49, and 81 and may include an additional patentable subject matter. Thus, for at least the reasons stated with respect independent claims 1, 17, 33, 49, and 81, Applicants respectfully request that the rejection of claims 2, 4-12, 14, 16, 19-23, 25-32, 35-39, 41-48, 50, 51, 53-55, and 57-64 under 35 U.S.C. 103(a) also be reconsidered and withdrawn.

Claims 3, 24, 40, and 56 were rejected under 35 U.S.C. §103(a) as being unpatentable over ILMI Spec in view of Hanaki and in further view of Crooks (Pub. No. US 2002/0055988 A1, hereinafter "Crooks"). Crook was cited to remedy ILMI Spec in view of Hanaki's deficiency of "a slot number" or "a port number" as recited in claims 3, 24, 40, and 56. Applicants respectfully submit that Crooks does not supply the features of amended independent claims 1, 17, 33, and 49 that are missing from ILMI Spec and Hanaki. Claims 3, 24, 40, and 56 depend from their respective independent claims 1, 17, 33, and 49 and may include an additional patentable subject matter. Thus, for at least the reasons stated with respect independent claims 1, 17, 33, and 49, Applicants respectfully request that the rejection of claims 3, 24, 40, and 56 under 35 U.S.C. 103(a) be reconsidered and withdrawn.

New Claims

Independent claims 82 and 83 have been newly added. New claims 82 and 83 are fully supported in the original specification, for example, at paragraphs [0021]-[0023]. Thus, Applicants respectfully submit that no new matter has been added. Claims 82 and 83 each recite elements similar to the elements of claim 1 quoted in preceding section. Thus, the arguments in support of the patentability of claim 1 apply similarly to independent claims 82 and 83.

Thus, for at least the reasons stated with respect to claim 1, Applicants respectfully submit that neither ILMI Spec nor Hanaki, alone or in combination, teaches or suggests all the elements recited in claims 82 and 83. Accordingly, Applicants respectfully request that claims 82 and 83 be considered and allowed.